

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

Reserve
aHB1956
.C76
1996

ERS Staff Paper

Economic
Research
Service

Rural
Economy
Division

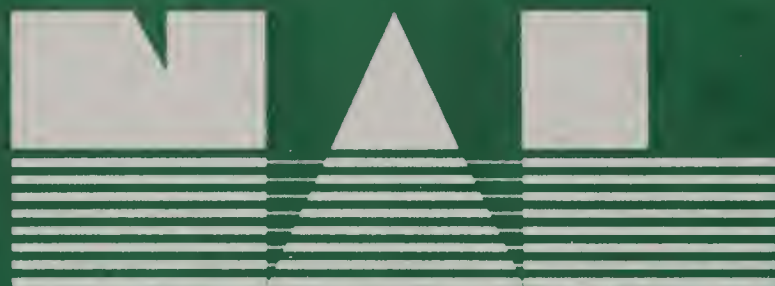
Number 9615

Migration and Economic Restructuring in Nonmetro America, 1989-94

John B. Cromartie
Mark Nord

This report was reproduced for limited
distribution to the research community
outside the U.S. Department of Agriculture
and does not reflect an official position
of the Department.

**United States
Department of
Agriculture**



National Agricultural Library

Migration and Economic Restructuring in Nonmetro America, 1989-94. John B. Cromartie and Mark Nord. Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. Staff Paper No. AGES9615.

Abstract

Widespread population growth is underway in nonmetro America, mostly as a result of favorable net migration. We examine in- and outmigration separately to measure the relative importance of each to this resurgence. In addition, we explore the changing relationships among nonmetro migration, urban influence, and industrial structure. Isolated nonmetro areas were capturing a significant share of total net migration by 1993-94, but the relative contribution of in- and outmigration varied regionally. Controlling for industrial structure and natural amenities, the effect of metro proximity on nonmetro net migration switched from positive to negative between 1988-89 and 1993-94. Results suggest a revived period of deconcentration as people are increasingly able to act upon long-held residential preferences. Emerging migration patterns coincide with changes in rural comparative advantage. The rural advantage is increasingly based on the residential and recreational attractiveness of its natural amenities rather than on the extractive value of its natural resources or its production-related advantages.

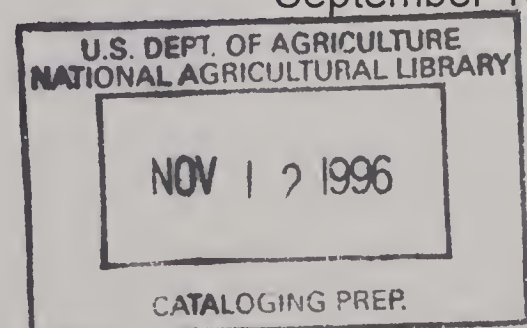
Keywords: nonmetro migration, urban influence, industrial structure, natural amenities.

Acknowledgments

This paper was presented at the annual meeting of the Population Association of America, May 10, 1996, in a session on "Renewed Growth in Nonmetropolitan Areas of the U.S." organized by Kenneth M. Johnson. The authors thank Robert M. Gibbs, Linda L. Swanson, and John M. Wardwell for their insightful comments.

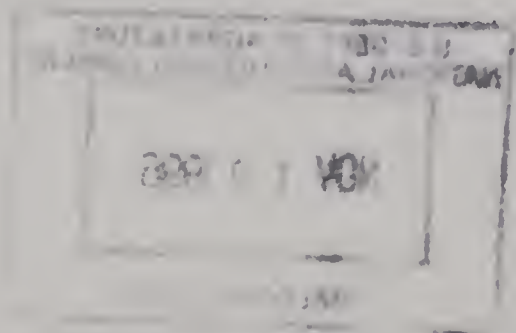
Washington, DC 20005-4788

September 1996



Contents

Summary	iii
Theoretical Background and Hypotheses	1
Data and Methods	4
Nonmetro Migration Trends, 1988-94	5
Modeling Nonmetro Migration, 1988-89 and 1993-94	7
Conclusions	13
References	16
Appendix	17



Summary

Nonmetro population gains through net migration have risen steadily since 1987, offsetting losses during the earlier part of the decade. This analysis examines in- and outmigration separately for the years 1988-89 through 1993-94 in order to answer the following questions: (1) How important to nonmetro population resurgence was increased retention of migrants in relation to increased immigration, and how did this vary across regions? (2) What were the relationships among migration, urban influence, and industrial structure, and how did they change over the 6-year period?

Migration patterns, the major determinant of differential rural growth, are changing as rural areas move from a phase of comparative advantage emphasizing production factors to one based on amenities. Not only are the destinations of migrants changing, but the economic and social determinants of migration are as well. We hypothesize that amenity-related employment sectors should be a dominant engine of nonmetro migration in the 1990's, compared with employment in other sectors. In addition, the effect of urban influence on migration should be declining and that of natural amenities rising as more and more people find themselves able to act on their residential preferences for high-amenity, rural settings. This is part of a larger study examining how migration dynamics and changes in rural comparative advantage combine to shape the demand for unskilled and skilled workers and the earnings per job found in different rural areas.

We used county-to-county migration data tabulated by the Internal Revenue Service, based on matching addresses from tax returns. Employment data by county came from a four-digit Standard Industrial Classification (SIC) provided by the Bureau of Labor Statistics. Urban influence was measured both in terms of the proximity of metro populations to nonmetro areas and the percent urban within nonmetro areas. Climate, hydrography, topography, and elevation data were combined into a single, natural amenities index.

The bivariate effect of metro proximity on nonmetro net migration all but disappeared in the early 1990's after being quite strong in the late 1980's. By 1993-94, isolated, nonmetro areas, especially in the intermountain West, were capturing a significant share of total net migration. Most of the change in the effect of metro proximity on migration in the 1990's came about through its effect on immigration. Controlling for industrial structure, the effect of metro proximity switched from positive to negative during this time period. Metro proximity affected the kinds of jobs that were available in different places; the types of jobs associated with high net migration increasingly coincided with an amenity-based rural comparative advantage, even when controlling for the strong positive effect of natural amenities. The U.S. moved into a period when forces of deconcentration were increasingly revitalizing nonmetro areas.

Migration and Economic Restructuring in Nonmetro America, 1988-94

John B. Cromartie and Mark Nord

Widespread population growth is underway in rural and small-town America, mostly as a result of changes in migration flows favorable to rural areas. In 1987, the nonmetro population growth rate was higher than the previous year for the first time in a decade (Fuguitt and Beale 1990). Population gains through net migration have risen steadily since then, offsetting losses during earlier years of the 1980's. Migration exchange has favored nonmetro areas since at least 1988-89 and has consistently widened. During 1990-95, nonmetro areas grew by 1.55 million people through net migration, offsetting the 1.37 million people lost to metro areas during the 1980's (Beale 1996). Overall metro and nonmetro growth rates have been roughly equal in recent years, but metro areas rely on higher natural increase and immigration from abroad to offset migration losses to nonmetro areas.

While the contours of renewed nonmetro growth have been laid out in some detail, little is known of the changing system of migration flows and the associated sectoral employment shifts. This analysis departs from previous work done on post-1990 trends by examining in- and outmigration separately and by considering the changing influence of industrial structure on migration. Migration for the years 1988-89 through 1993-94 is analyzed with the following questions in mind: (1) How important to nonmetro population resurgence is increased retention of migrants in relation to increased inmigration, and how does this vary across regions? (2) What is the relationship among migration, urban influence, and industrial structure, and how are they changing?

Theoretical Background and Hypotheses

Migration is determined largely by the economic "milieu" in which it occurs (Brown and Sanders 1981). Over the past several decades, vast shifts in national and international economies, increases in productivity, decreases in relative demand for primary (rural-produced) products, and declining U.S. investment, among other developments, have shifted the economic context in which rural migration takes place. Changes in rural comparative advantage vis-a-vis other parts of the Nation and the world have resulted.

Galston (1993) identifies three broad, overlapping phases of rural advantage: (1) from early on, rural areas have built their economies on "place-specific natural resources" (p.15); this advantage has declined in relative importance since the 1960's and 1970's, as reflected in employment changes in agriculture and mining, but has not vanished completely; (2) growing in importance during the 1960's and 1970's were

production factors (the costs of production: lower cost, less unionized labor, abundant land, relaxed regulations), which led to a manufacturing growth spurt and played a major role in the “rural renaissance” of the 1970's; (3) recently, natural amenities (aspects of the landscape attractive for non-economic reasons) have begun to fuel rural growth.

Migration patterns, the major determinant of differential rural growth, will change as rural areas move from one phase to the next. Not only will the destinations of migrants change, but the relationship between migration and economic structure will be altered. This is the basic premise of the “development paradigm of migration” elaborated by Brown and Sanders (1981): economic growth (positive or negative) changes industrial structure which, in turn, alters the factors that influence migration.

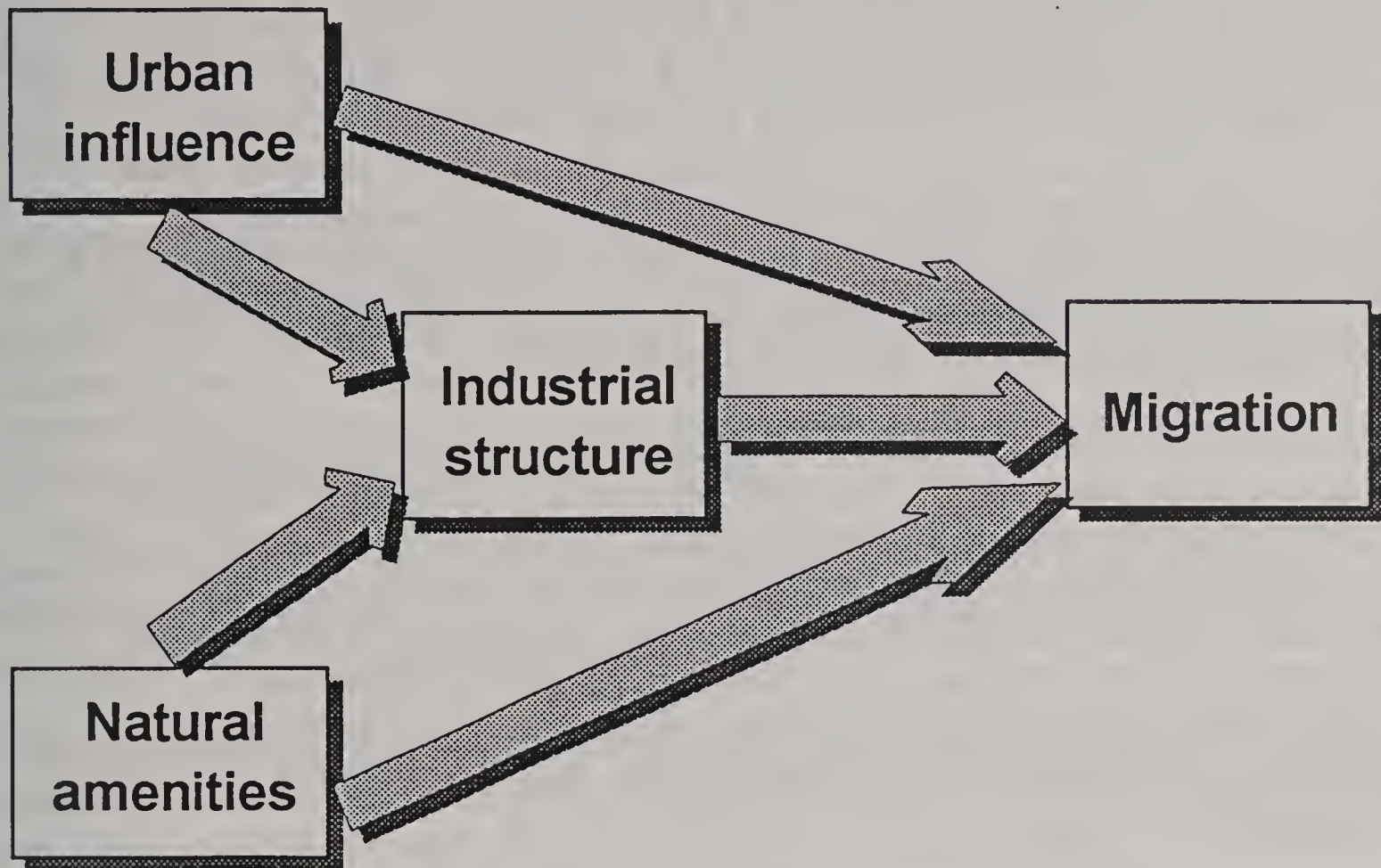
Migration is more than an economic decision. Residential preferences or, more importantly, changes in the ability to act upon preferences, determine rural migration patterns as well. A complementary theoretical viewpoint, first elaborated by Wardwell (1980) and given the label “deconcentration perspective” by Frey (1993), emphasizes the growing convergence of rural and urban areas as a result of increasing locational flexibility on the part of both firms and households:

...longstanding residential preferences toward low-density locations are becoming less constrained by institutional and technological barriers. The changing industrial structure, rising standard of living, and technological improvements in transportation, communication, and production are leading to a convergence--across size and place categories--in the availability of “urban” amenities that were previously accessible only in large places. As a consequence, deconcentration ...tendencies represent the beginning of a long-term shift toward the depopulation of urban agglomerations in all regions (Frey 1993, p. 45).

Galston's “three phases of rural comparative advantage” and Wardwell's “deconcentration perspective,” provide a theoretical framework for modeling the joint effects of urban influence, amenities, and industrial structure on nonmetro migration. If Galston is correct, amenity-related employment sectors (e.g., retail, personal consumer services) should be a dominant engine of nonmetro migration in the 1990's, compared with employment related to natural resource extraction and employment related to low costs of production (e.g., routine manufacturing). According to Wardwell, the effect of urban influence on migration should be declining and that of natural amenities rising as more and more people find themselves able to act on their preference for high-amenity, rural settings.

In the resulting migration model, we view both urban influence and amenities as exogenous (fig. 1). We hypothesize that both have direct effects on migration and

Figure 1. Nonmetro migration model



indirect effects through their influence on industrial structure. Although the time period we examine is relatively short (1988-1994), we predict that changing conditions pertinent to rural migration, outlined above, will be reflected in the changing importance of the model's components.

Data and Methods

The Internal Revenue Service compiles annual, county-to-county migration data by matching current-year tax returns with those from the previous year and comparing addresses. If a county of residence is different in the previous year, members of that family are considered migrants. If the county is the same or no matching return is found, they are considered nonmigrants. The number of exemptions claimed on the return serves as a proxy for the number of family members. Most people file their returns during early-to-mid April, so the data here refer to flows from April of one year to April the next. We describe migration changes using all six time periods, 1988-94, but apply the migration models to the first and last time periods only.

IRS migration data cover an estimated 85-87 percent of the migrating population, offering a window into detailed, annual population dynamics not available elsewhere. Coverage varies geographically and is demographically selective--those likely to be left out include college and military migrants, labor force entrants, and the long-term unemployed. Adjustments to the data to partially correct for geographic variation of missing individuals are commonly carried out but have not been applied here; adjustments may create more problems than they solve because the demographic groups left out most likely have very different geographic migration patterns than the population as a whole.

Industrial restructuring accompanying population shifts was analyzed using four-digit Standard Industrial Classification (SIC) of employment by county, provided by the Bureau of Labor Statistics in a data series known as ES-202. Data include only workers covered by State unemployment insurance and Federal unemployment compensation. Sole proprietors are not included. Data for Alaska, Michigan, New Hampshire, and Wyoming, are not available, so those States are excluded from the regression analysis (descriptions of migration trends include all States).

The advantage of ES-202 data compared with other employment and earnings series is the four-digit detail. We began by aggregating employment into nine production-sector industries and nine consumer-sector industries (consistent with McGranahan and Ghelfi 1991, p. 88-89). In comparison with the 10 sectors derived from 1-digit SIC codes, this breakdown more accurately divides industries along the lines of Galston's three phases of rural comparative advantage, and isolates those more likely to be affected by global competition and technological change. Preliminary analysis led us to combine some of the 18 sectors: small-firm and large-firm routine manufacturing were combined with

textile and apparel into one category of routine manufacturing, and high- and low-technology producer services were combined. To reduce collinearity effects, employment in transportation, communications, utilities, government, and construction were excluded from the models, leaving 10 sectors: agriculture, mining, routine manufacturing, small-firm complex manufacturing, large-firm complex manufacturing, producer services, wholesale trade, retail trade, professional consumer services, and personal consumer services. The variables measure the average annual number of employees in each of the industry sectors as a percentage of total employment in the county. Employment data for 1989 were used for modeling 1988-89 migration, while data for 1993 were used for modeling 1993-94 migration (1994 employment data are not yet available).

Urban influence was measured using two variables. The first measures metro proximity using a "population potential" model. For each nonmetro-metro county pair, the 1990 metro population is divided by the squared, great-circle distance between the counties, and these values are summed for each nonmetro county. The second variable captures the effect of urban within nonmetro counties and is simply the percentage of the county's population that was urban in 1990.

Natural amenities were measured using an Economic Research Service natural amenity scale (McGranahan 1993), a composite of data based on climate, hydrography, topography, and elevation.

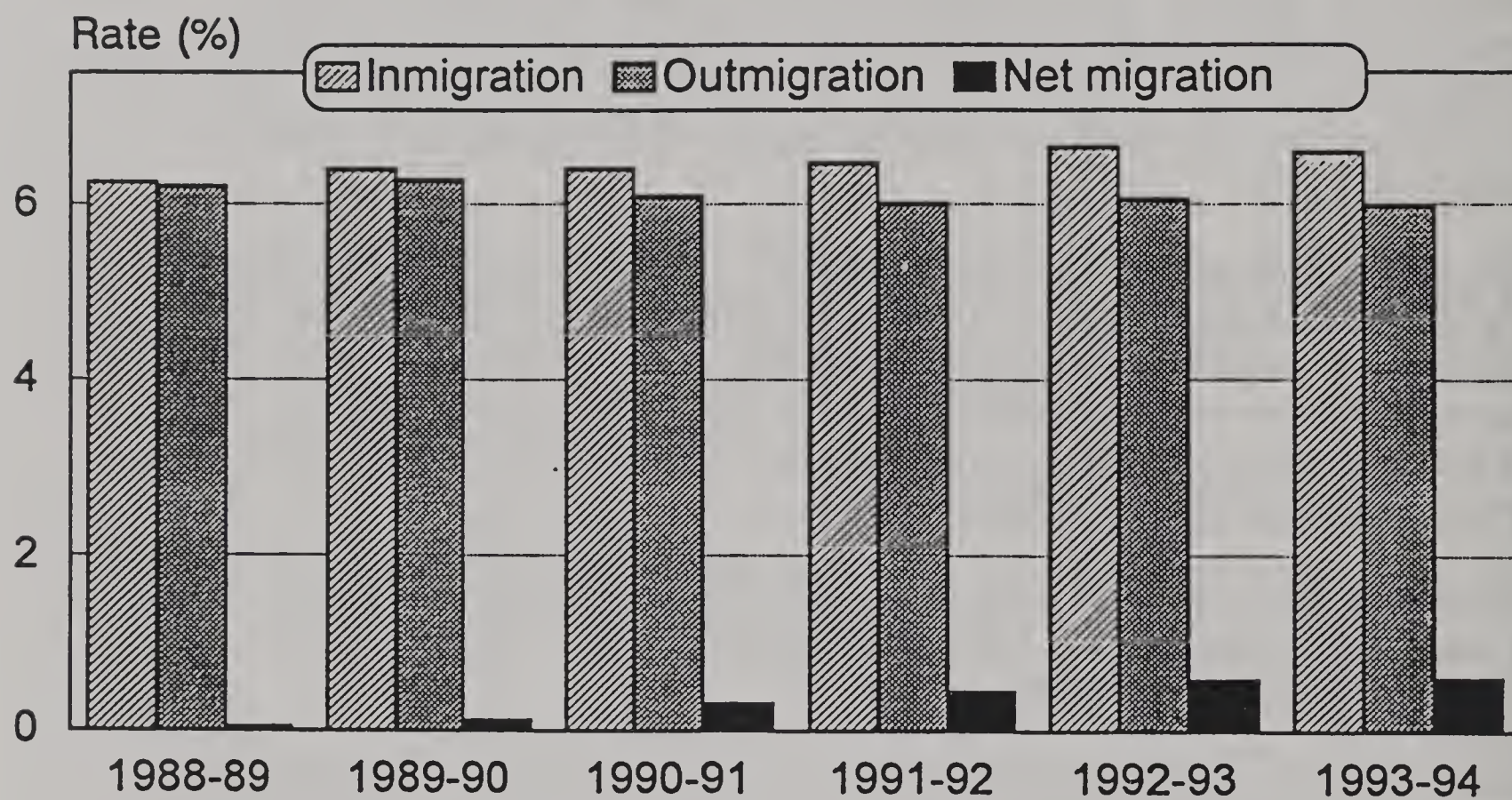
In addition to industrial structure, urban influence, and natural amenities, commuting is included to control for the fact that employment and residence often are not in the same county. The variable measures the percent of the working population who worked outside their county of residence in 1990.

Nonmetro Migration Trends, 1988-94

IRS migration data corroborate the picture of a "broad revival of population growth in rural and small-town America" that has been documented using post-1990 census population estimates (Beale 1996), not surprising considering IRS data are one of the sources used in the estimates program. For the Nation as a whole, nonmetro net migration jumped from 15,000 in 1988-89 to 254,000 in 1993-94. However, net migration represents just a fraction of the total rearrangement of population taking place in nonmetro areas (fig. 2). While the 1993-94 net migration gain was 0.6 percent (representing the residual exchange with metro areas), the rates of overall nonmetro in- and outmigration (including those moving from one nonmetro county to another) exceeded 6 percent.

In- and outmigration tend to be highly correlated, moving up and down together over time. Increases in net migration from one period to the next occurred when either the

Figure 2. Nonmetro migration, 1988-94



Produced by the Rural Economy Division, Economic Research Service, U.S. Dept. of Agriculture, using data from the Internal Revenue Service.

increase in immigration was higher than the increase in outmigration or the decrease in immigration was lower than the decrease in outmigration. In only one interval (between 1990-91 and 1991-92) did immigration increase while outmigration decreased. The revival of nonmetro population is a combination of small increases in the rate of immigration and small decreases in the rate of outmigration, with immigration contributing slightly more overall.

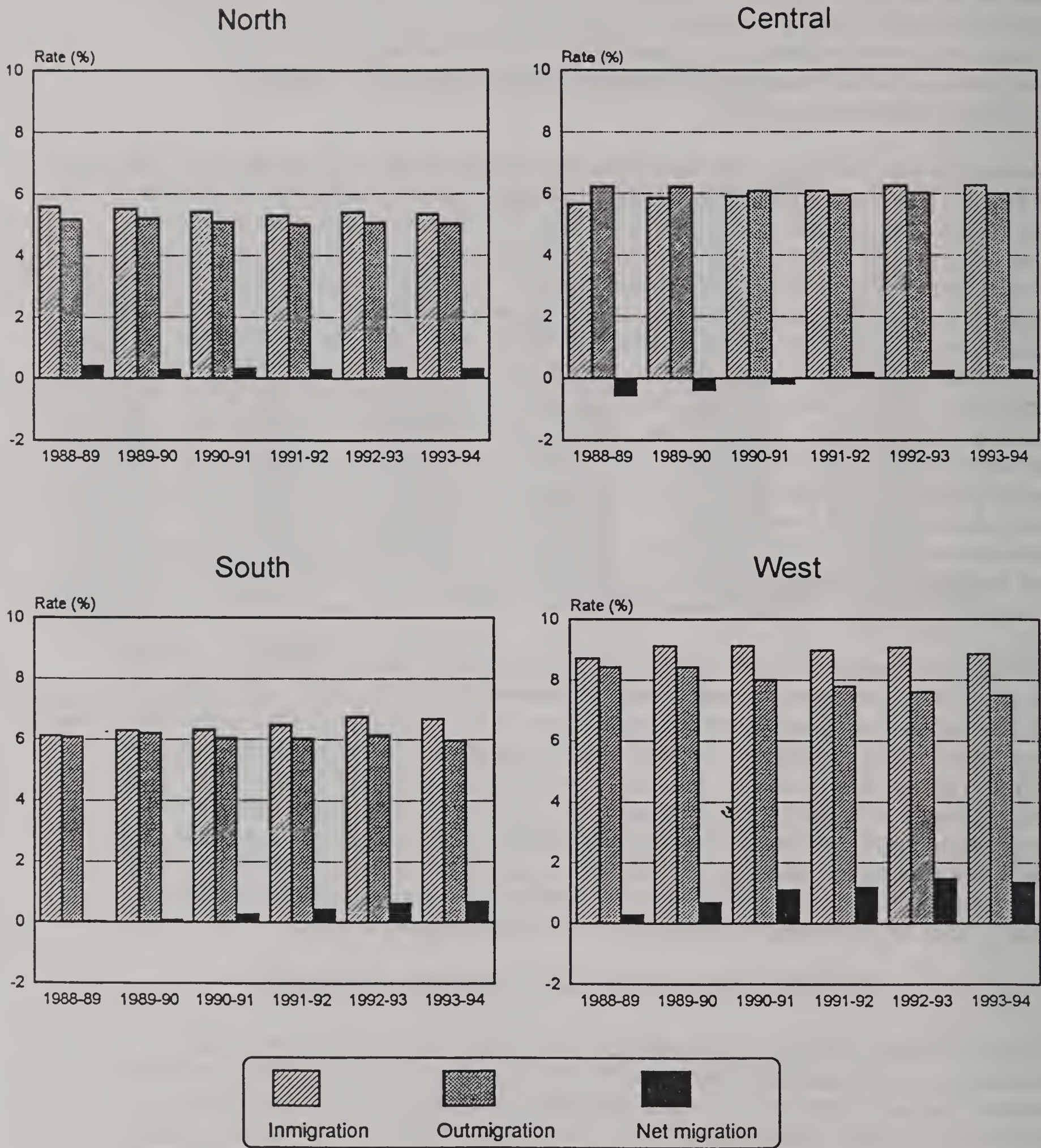
Nonmetro areas in all regions of the Nation were experiencing net immigration by 1993-94 (fig. 3). The North showed the smallest change in migration patterns and was the only region to experience a decrease in net migration, mostly due to lower immigration. In all other regions of the Nation, net migration increased over the 6-year period, but the relative contribution of in- and outmigration varied. The Central region switched from negative to positive net migration, mostly from increasing immigration. Immigration also contributed much more to the seven-fold jump in net migration in the South. The nonmetro West grew from net migration at twice the rate of the next fastest-growing region (the South). With so much attention paid to stories of California urbanites flooding the countryside, it is surprising that population retention was a key to the nonmetro West's phenomenal growth spurt. While outmigration dropped by over 11 percent between 1988-89 and 1993-94, immigration levelled off after an initial rise and was lower in 1993-94 than in 1990-91. As cutbacks in mining and other natural-resource-based industries have played themselves out and opportunities in recreation and tourism have grown dramatically, fewer nonmetro residents in the West are finding it necessary to leave in order to secure a job.

The biggest change in metro migration patterns occurred between 1989-90 and 1990-91, when both in- and outmigration dropped in an early response to the recession (fig. 4). The biggest increases in net migration losses occurred in the central counties of large metro areas, mostly as a result of fewer immigrants. Nonmetro counties adjacent to metro areas have shown an increase in net migration over the 6-year period, but in- and outmigration have fluctuated. In contrast, counties not adjacent to metro areas have experienced consistently increasing immigration and decreasing outmigration over the entire time period, showing a switch from negative to positive net migration. After losing population to net migration early on, non-adjacent counties grew by 96,000 during 1993-94, capturing over one-third of the total nonmetro growth.

Modeling Nonmetro Migration, 1988-89 and 1993-94

The aim of these analyses was to estimate the effects of urban influence, natural amenities, and industrial structure on nonmetro migration, and to measure how these effects changed during the post-1990 nonmetro resurgence. We estimated separate models for in-, out-, and net migration for 1988-89 and 1993-94. The biggest change during the period involves metro proximity, so we began by examining its independent effect on net migration. For this initial bivariate analysis, we used a quadratic version of

Figure 3. Nonmetro migration by region,* 1988-94

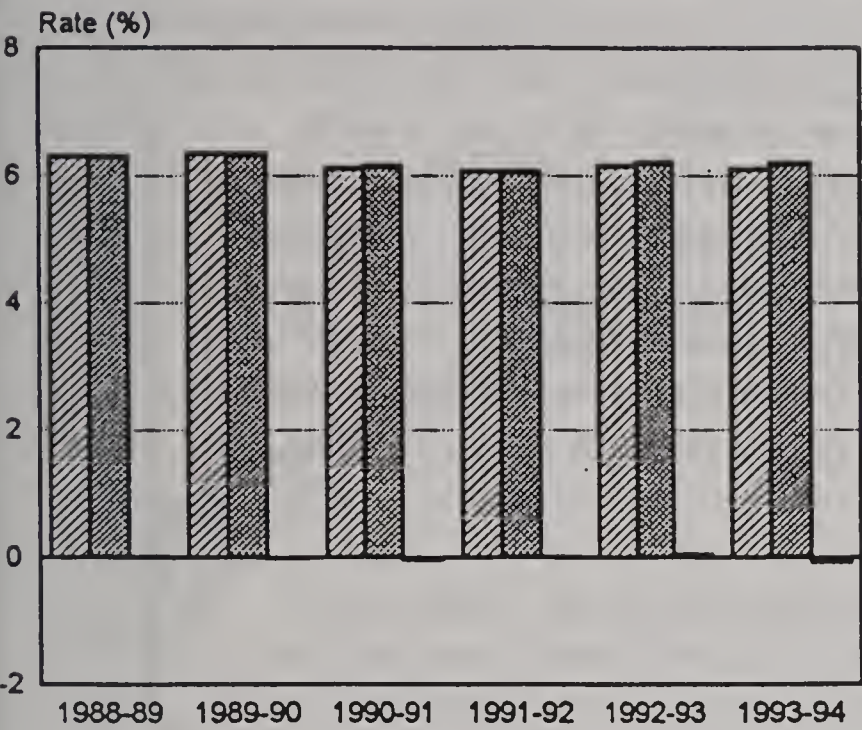


*Regions used in this study differ somewhat from those used by the Census Bureau. See Appendix Figure 1.

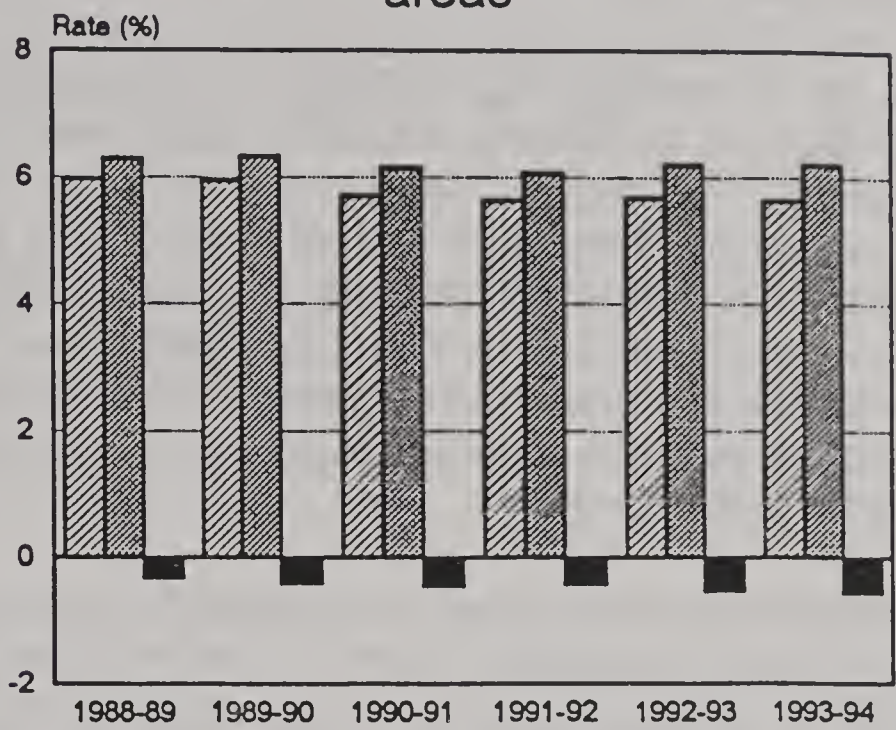
Produced by the Rural Economy Division, Economic Research Service, U.S. Dept. of Agriculture, using data from the Internal Revenue Service.

Figure 4. Migration rates by rural-urban location, 1988-94

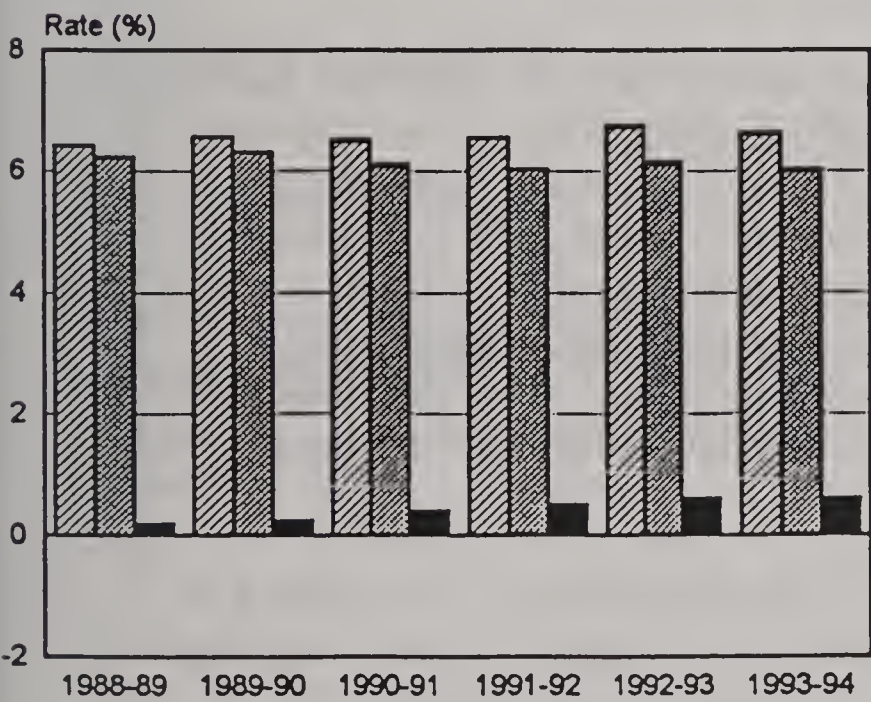
Combined metro



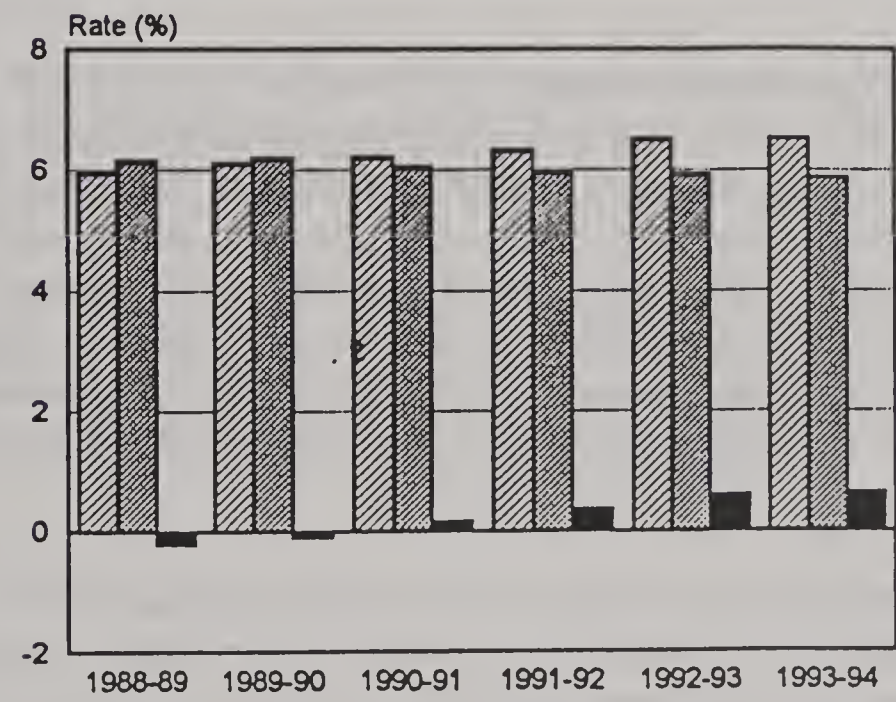
Central counties of large metro areas



Nonmetro, adjacent to metro



Nonmetro, not adjacent to metro



Produced by the Rural Economy Division, Economic Research Service, U.S. Dept. of Agriculture, using data from the Internal Revenue Service.

the metro proximity measure to examine the nonlinear character of the relationship between metro proximity and net migration; the quadratic form becomes unimportant in the full model specification.

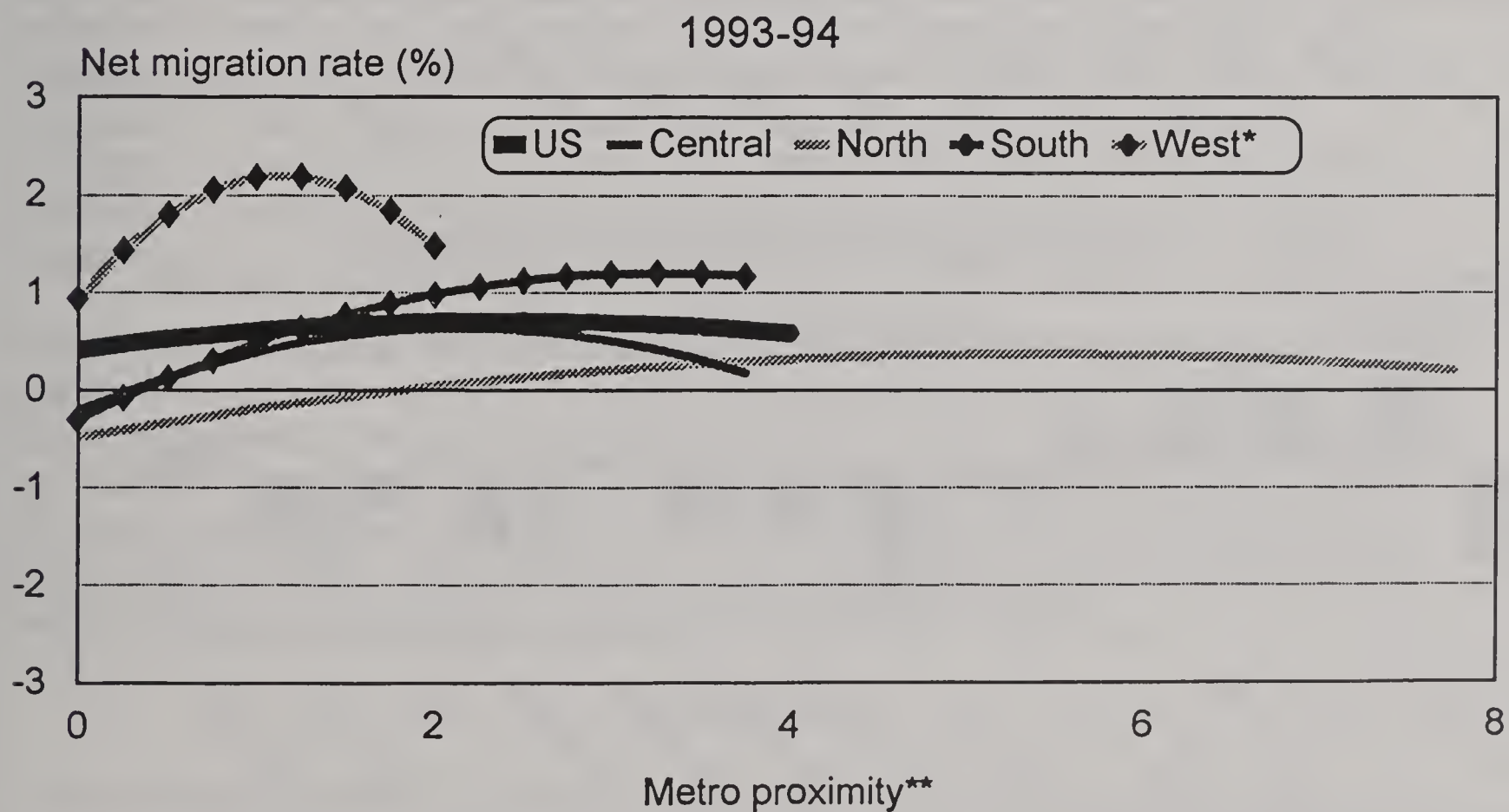
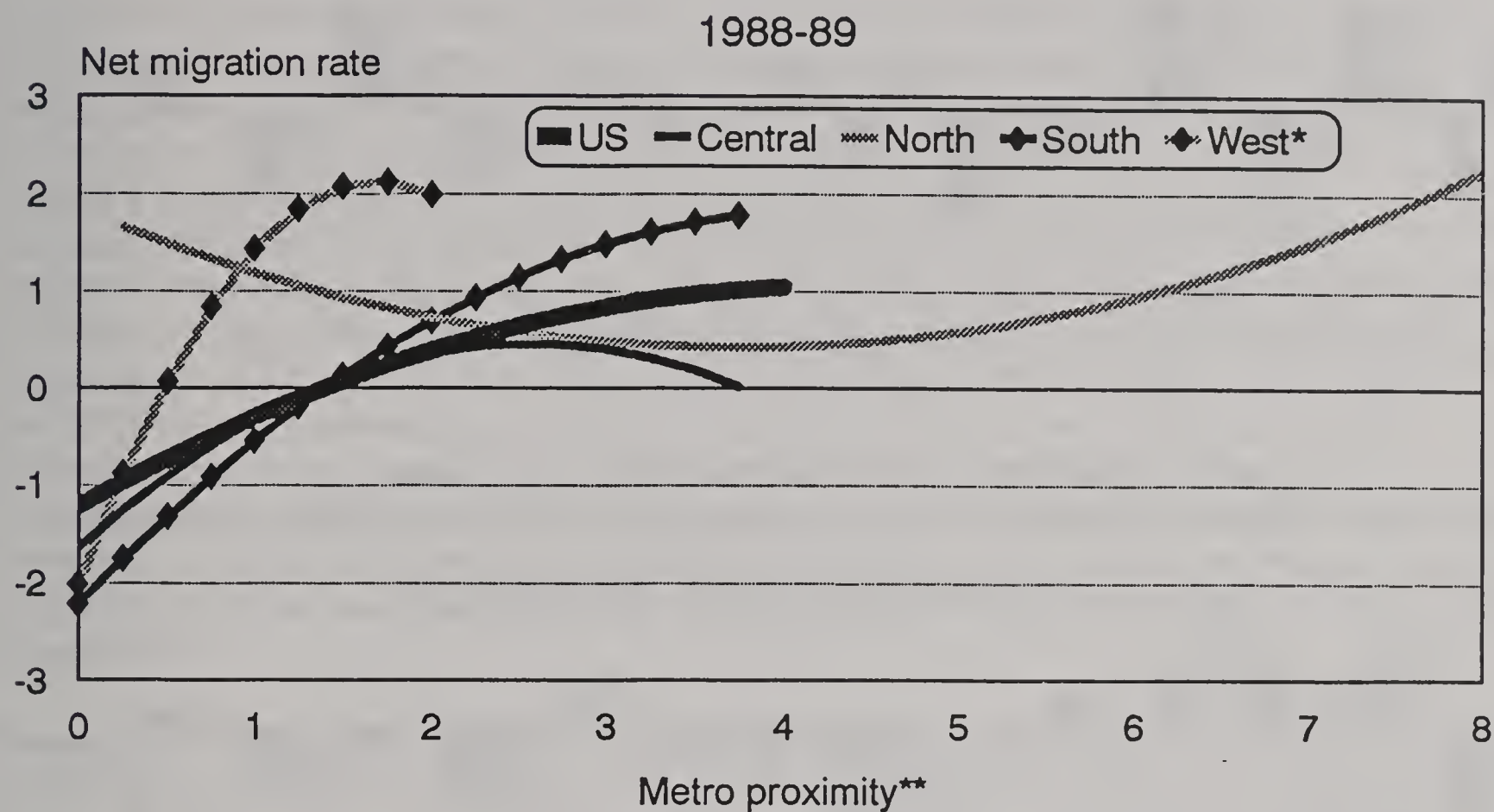
Within each region except the North, the bivariate effect of proximity to metro areas on net migration was strong and positive in 1988-89, with the strongest effect in the West (fig. 5). In the West and the Central, the relationship was nonlinear, with the highest net migration not for counties closest to major metropolitan areas but for those slightly removed. The unique shape of the North's curve is due to the relative compactness of the region and the presence of extensive, highly populated metro regions. The most isolated counties (which are fairly accessible compared with other parts of the country) and those closest to New York City experienced the highest net migration in 1989. For the Nation as a whole, over 9 percent of the variation in nonmetro net migration was explained by metro proximity; regionally, this varied from 12 percent in the West to 22 percent in the South.

The relationship weakened substantially over the next 5 years (fig.5). Less than 1 percent of the variation in nonmetro net migration had to do with metro proximity in 1993-94. Only in the South were the highest predicted values for net migration found close in, and even there the differences along the continuum were minimal. In other regions, the highest predicted values were found midway between the most accessible and the most isolated territory, and this form is accentuated in the West. For the Nation as a whole, the association of metro proximity and net migration has become almost nonexistent.

Comparing the results of the bivariate model with the full model for net migration, 1988-89 and 1993-94 (fig. 6), reveals that metro proximity had a direct effect on net migration as well as an indirect effect through its influence on industrial structure. Controlling for natural amenities, commuting, percent urban within nonmetro areas, and industrial structure, the effect of metro proximity decreased but did not disappear in 1989; in 1994, the direct effect of proximity on net migration was negative once the indirect effects through economic structure and commuting were controlled. The U.S. moved into a period when forces of deconcentration were increasingly revitalizing nonmetro areas.

Deconcentration seems to be taking place within nonmetro areas as well. The effect of percent urban was negative for both years--rural counties were attracting more migrants and/or losing fewer, and this effect increased somewhat over the time period. The strongest positive effect for both periods came from natural amenities; its relation to net migration changed little during the post-1990 period. Bivariate analysis of this variable (not shown) indicates that most of the effect of natural amenities on net migration is direct. We can speculate that in the future more and more of its effect will be mediated

Figure 5. Predicted net migration based on regression of net migration on urban proximity in quadratic form



*West region does not include AK and HI.

Metro proximity is measured as the sum of (population/distance2) to all metro counties.

Produced by the Rural Economy Division, Economic Research Service, U.S. Dept. of Agriculture.

Figure 6. Comparison of standardized regression coefficients
Dependent variables: net migration 1989 and net migration 1994 in nonmetro counties

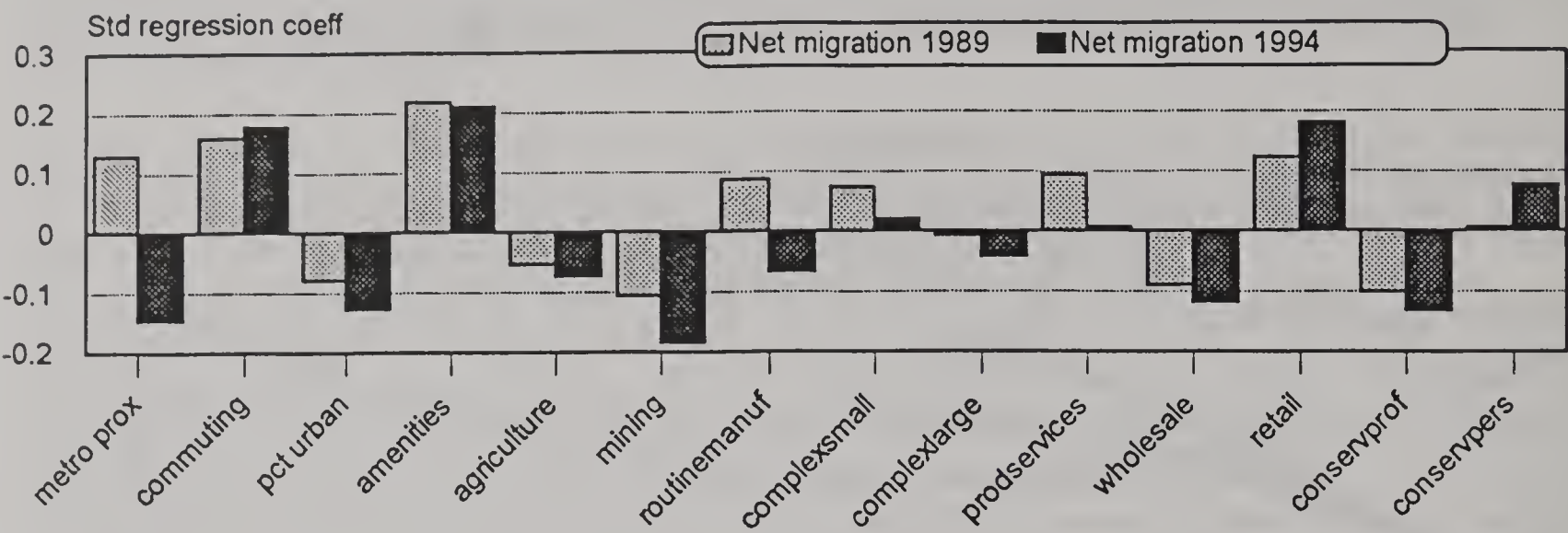


Figure 7. Comparison of standardized regression coefficients
Dependent variables: immigration 1989 and outmigration 1989 in nonmetro counties

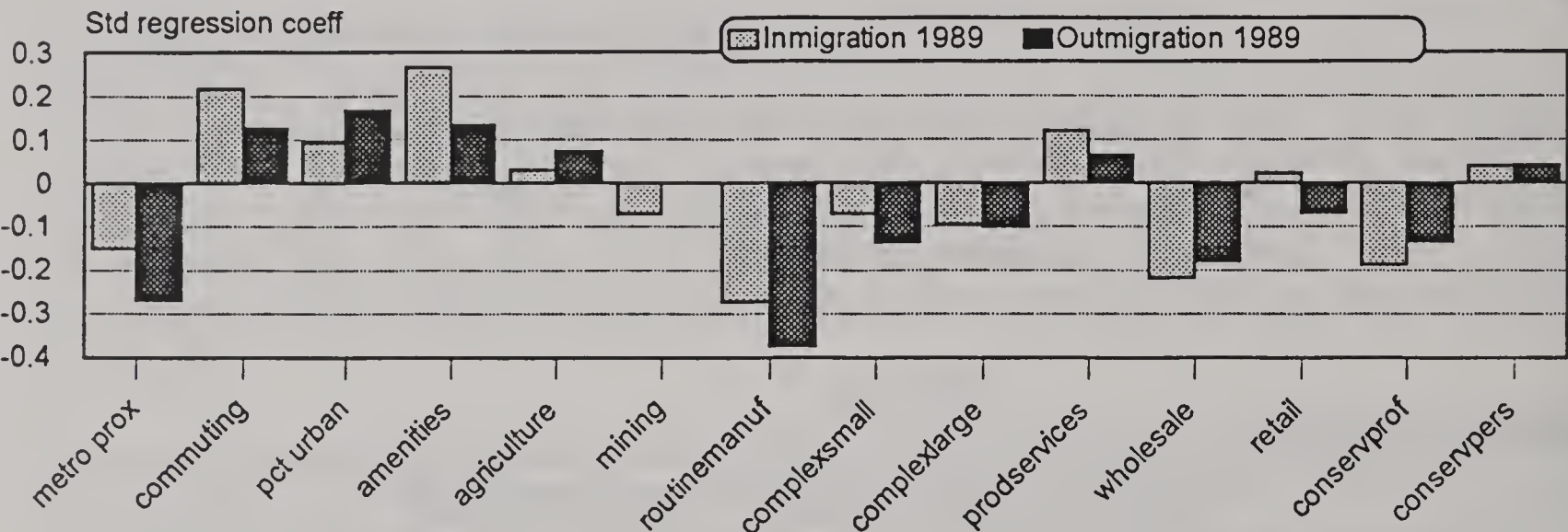
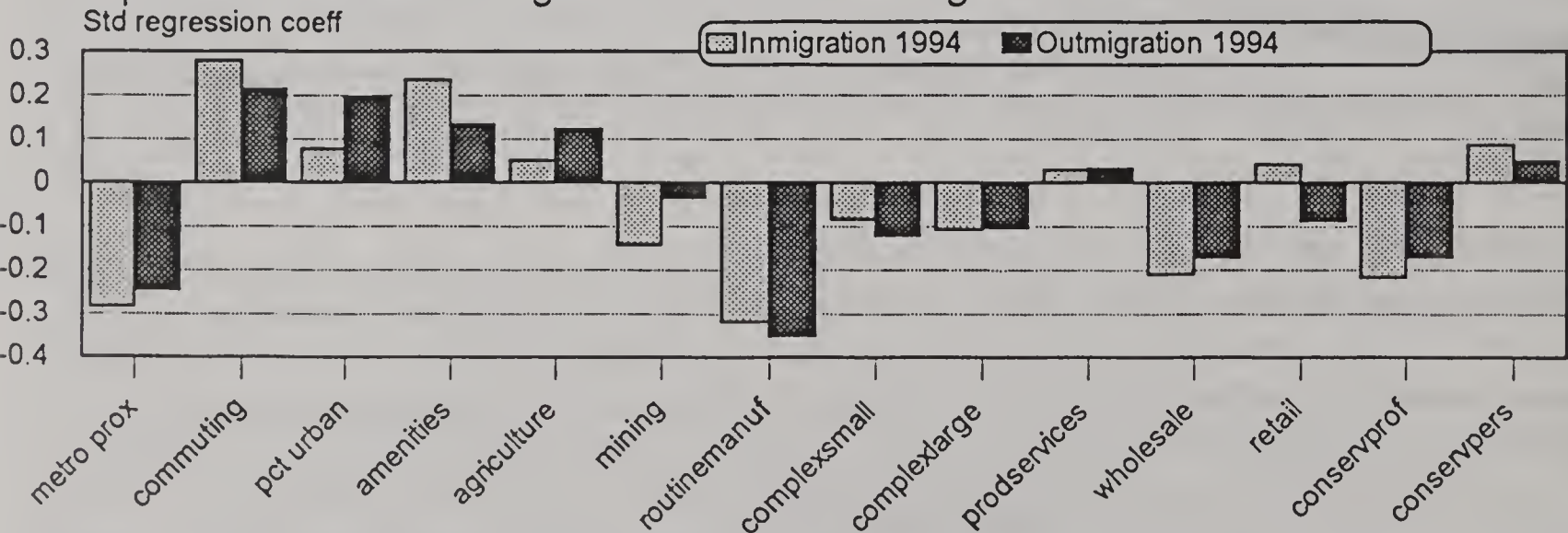


Figure 8. Comparison of standardized regression coefficients
Dependent variables: immigration 1994 and outmigration 1994 in nonmetro counties



The first four Independent variables are: proximity to metro areas, percent of workers commuting out of county, percent urban population, and natural amenities score. The remaining variables are percent of employment in agriculture, mining, routine manufacturing, complex small manufacturing, complex large manufacturing, producer services, wholesale, retail, professional consumer services, and personal consumer services. See text for detailed descriptions.

by industrial structure as people increasingly become attracted to these areas by the jobs found there as well as by the beautiful scenery.

The changing effects of different sectors of the economy follow Galston's three phases of rural comparative advantage. Primary, extraction-based industries--farming but especially mining--have an increasingly negative effect on net migration. (Interestingly, urban-based sectors such as wholesale and professional consumer services also exhibit a negative effect). The effect of routine manufacturing (corresponding to Galston's second phase), switched from positive to negative in the early 1990's. Whether this represents the end of an era--the transition from the second to third phase in Galston's timeline--can be confirmed only with a longer time series. Manufacturing areas continued to grow in the 1980's and early 1990's (Cromartie 1993, Beale 1996), but in this era of increasing globalization of trade more and more of these areas are attracting migrants or retaining population on the basis of assets other than manufacturing employment. Finally, sectors associated with amenities (retail and personal consumer services) show strong, increasingly positive effects on net migration, even when controlling (to some extent) for the physical amenities themselves.

Breaking net migration into its components shows the strong association between in- and outmigration (figs. 7-8). Comparing the metro proximity coefficients from the two years, it is clear that most of the change in the effect of metro proximity in the 1990's came about through change in its effect on immigration. In 1989, the effect was negative on both in- and outmigration (fig. 7) but especially on outmigration. The negative effect on outmigration changed little between 1988-89 and 1993-94. The negative effect on immigration almost doubled, to the extent that it exceeded outmigration and resulted in the switch to a negative effect on net migration (fig.8). Destination selection, rather than the decision to move, was responsible for the weakening role of metro proximity on the recent rural revival.

The effects of industrial structure on in- and outmigration help identify areas of relative stability, such as where routine manufacturing has a dampening effect on both in- and outmigration, and areas of relative instability, such as where producer and personal consumer services encourage high migration turnover. In the current phase, retail is the only sector that has an "effective" association with migration--it both encourages immigration and discourages outmigration. This is consistent with the notion that we have entered an amenity-based phase of rural economic change.

Conclusions

The bivariate association of nonmetro net migration with metro proximity all but disappeared in the early 1990's after being quite strong in the late 1980's. Isolated, nonmetro areas, especially in the intermountain West, were capturing a significant

share of total net migration. Controlling for industrial structure, the effect of metro proximity switched from positive to negative during this time period. Metro proximity affects the kinds of jobs that are available in different places; the types of jobs associated with strong inmigration in 1993-94 coincided with Galston's third phase of rural comparative advantage. But there remains a strong direct effect of metro proximity, denoting a revived period of deconcentration as people are increasingly able to act upon long-held residential preferences.

Deconcentration took place at different levels of the rural-urban hierarchy, not only in relation to the location of metro areas, but also in relation to cities within nonmetro areas. Even controlling for the effect of natural amenities, nonmetro counties with a mostly rural population had an advantage over those with cities in terms of attracting or retaining migrants. Urban-based industries also had a dampening effect on migration. There are attractive aspects of "rural" living that are not fully captured by the physical components used in the amenity variable.

Although we have not yet incorporated earnings, skills (i.e., education), and other job-related information into this analysis of migration and industrial restructuring, it is likely that retail and other sectors associated with renewed net inmigration have jobs that on average pay less, are less protected, come with fewer benefits, require less skills, and have career trajectories that promise much lower lifetime earnings than jobs that were important in earlier phases of rural advantage. Emerging migration patterns are determined in part by what opportunities are available to young adults (the bulk of labor-force migrants), which in turn is a function of the changing economic niche for rural areas in an increasingly internationalized economy. Previous research has shown that this niche is not a function of human resources available in rural areas, but more intimately connected to industrial structure that, in turn, has evolved in relation to metro proximity (McGranahan and Ghelfi 1991). Our findings confirm that understanding rural population dynamics--and thus rural economic well-being--requires studying the role of industrial structure. Changes in rural comparative advantage strongly affect the demand for unskilled and skilled workers and the earnings per job found in different rural areas.

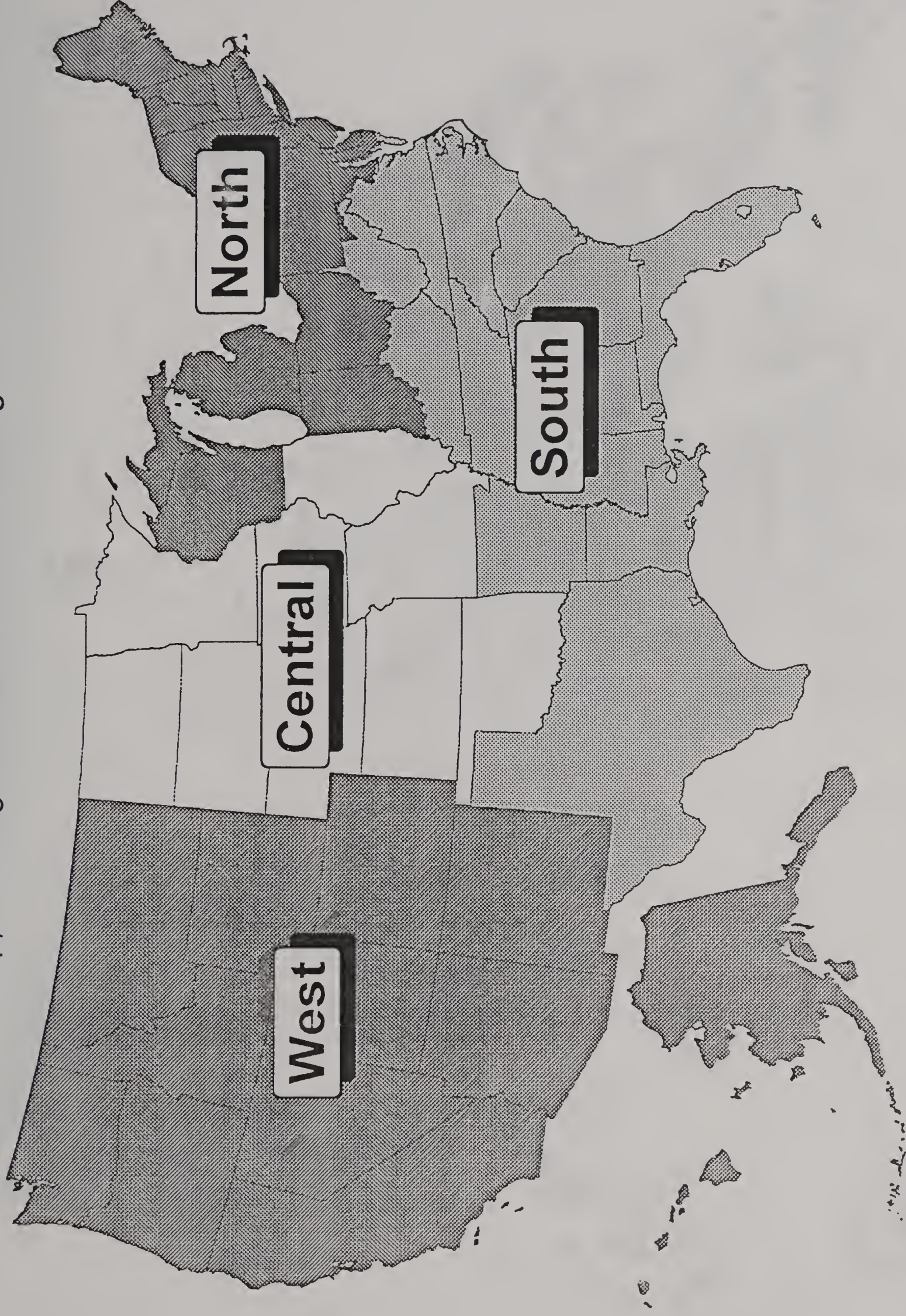
The demand for resource-based and production-related employment is on the wane as we move further into Galston's third phase of rural comparative advantage. The demand for unskilled work in retail and personal consumer services is on the rise as natural amenities establish themselves as an increasingly dominant economic force in rural America. We expect the spatial association between natural amenities and the predominance of jobs characteristically generated by them to strengthen, so that in the future more of amenities' influence on migration will be mediated through industrial structure. Clearly, the well-being of rural America rests to an increasing degree on opportunities created by the residential and recreational attractiveness of its amenity

areas rather than the extractive wealth of its natural resources or its production-related advantages.

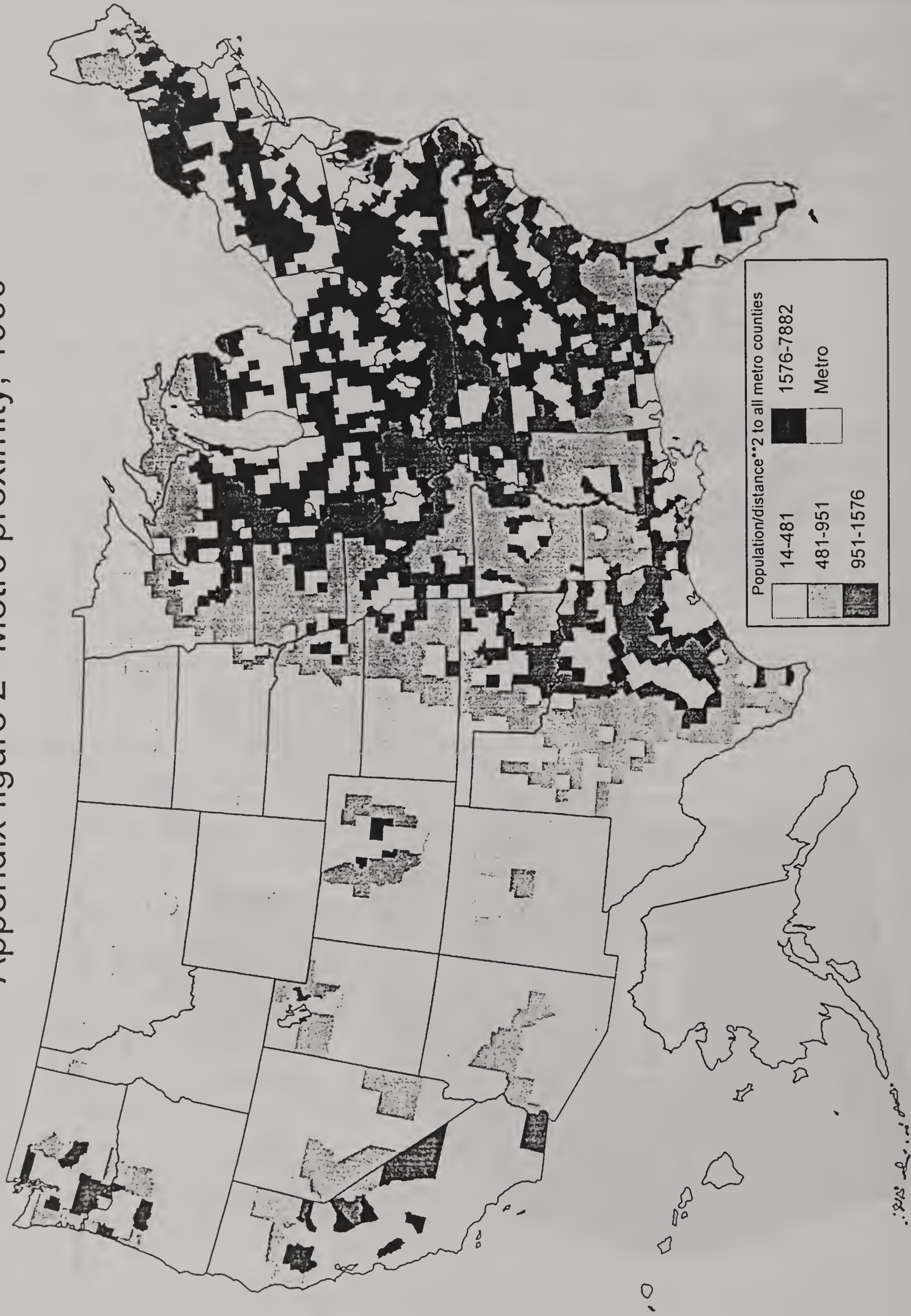
References

- Beale, Calvin L. 1996. Nonmetro population change, 1990-95. Rural Conditions and Trends, forthcoming.
- Brown, Lawrence A. and Rickie L. Sanders. 1981. Toward a Development Paradigm of Migration: With Particular Reference to Third World Settings. In Migration Decision Making: Multidisciplinary Approaches to Micro-Level Studies in developed and Developing Countries. Gordon F. DeJong and Robert W. Gardner (eds.). New York: Pergamon Press.
- Cromartie, John B. 1993. Population. Rural Conditions and Trends, Vol. 4, No. 3, pp. 14-15.
- Frey, William H. 1993. Perspectives on Recent Demographic Change in Metropolitan and Nonmetropolitan America. In Population Change and the Future of Rural America: A Conference Proceedings. Linda L. Swanson and David L. Brown (eds.), Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. Staff Report No. AGES 9324.
- Fuguitt, Glenn V. and Calvin L. Beale. 1990. The Contribution of Migration and Natural Increase to the Nonmetropolitan Turnaround and its Reversal. Presented at the annual meeting of the Association of American Geographers, Toronto, Canada, April, 1990.
- Galston, William. 1993. Rural American in the 1990's: Trends and Choices. In Population Change and the Future of Rural America: A Conference Proceedings. Linda L. Swanson and David L. Brown (eds.), Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. Staff Report No. AGES 9324.
- McGranahan, David A. 1993. Population Loss in Remote Rural Areas. Economic Research Service, U.S. Dept. Of Agriculture, Agriculture Information Bulletin No. 664-70.
- McGranahan, David A. and Linda M. Ghelfi. 1991. The Education Crisis and Rural Stagnation in the 1980's. In Education and Rural Economic Development: Strategies for the 1990's. Agriculture and Rural Economy Division, Economic Research Service, U.S. Dept. of Agriculture. ERS Staff Report No. AGES 9153.
- Wardwell, John M. 1980. Toward a Theory of Urban-Rural Migration in the Developed World. In New Directions in Urban-Rural Migration. David L. Brown and John M. Wardwell (eds.). New York: Academic Press.

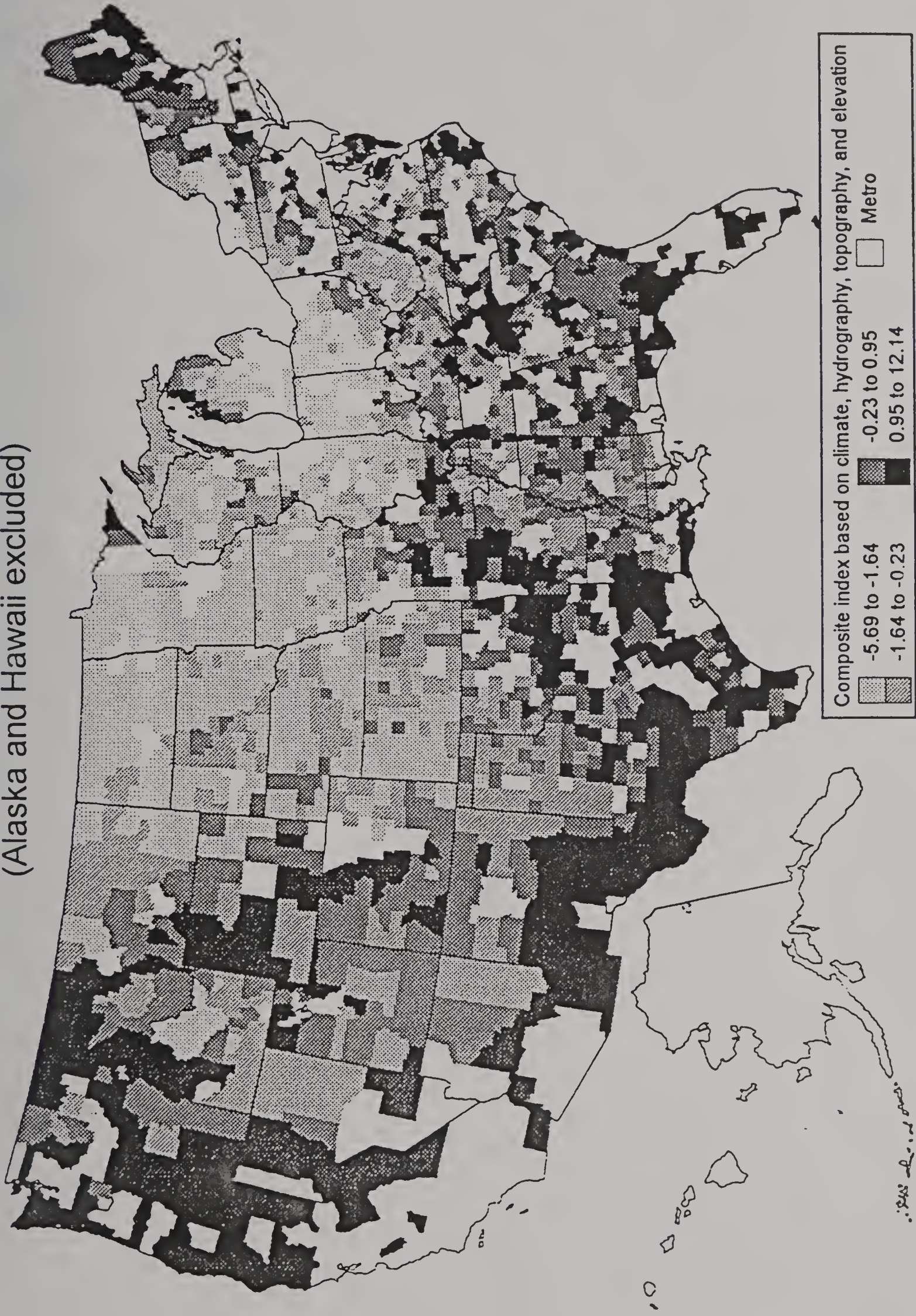
Appendix figure 1--Modified census regions

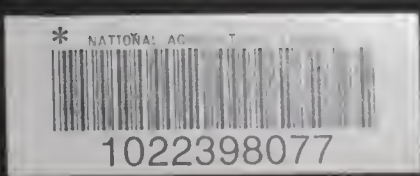


Appendix figure 2--Metro proximity, 1990



Appendix figure 3--ERS natural amenities index
(Alaska and Hawaii excluded)





NATIONAL AGRICULTURAL LIBRARY



1022398077